

NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION

LAKE TROPHIC DATA

MORPHOMETRIC:

LAKE <u>French Pond</u>	LAKE AREA (HA) <u>12.50</u>
TOWN <u>Haverhill</u>	MAXIMUM DEPTH (M) <u>7.8</u>
COUNTY <u>Grafton</u>	MEAN DEPTH (M) <u>3.5</u>
RIVER BASIN <u>Connecticut</u>	VOLUME (M ³) <u>43,191,500</u>
LATITUDE <u>44° 06' N</u>	MUD SURFACE AREA (HA) <u>12.52</u>
LONGITUDE <u>71° 58' W</u>	RELATIVE DEPTH <u>1.9</u>
ELEVATION (FT) <u>762</u>	SHORE CONFIGURATION <u>1.12</u>
SHORE LENGTH (M) <u>1400</u>	AREAL WATER LOAD (M/YR) <u>10.17</u>
WATERSHED AREA (HA) <u>310.8</u>	FLUSHING RATE (YR ⁻¹) <u>2.9</u>
% WATERSHED PONDED <u>0</u>	PHOSPHORUS RETENTION COEFF. <u>0.55</u>

BIOLOGICAL:

DATE	28 Jan 1985	29 AUG 1984
DOM. PHYTOPLANKTON (% total) ¹	Asterionella (95%)	Mallomonas (20%)
²		Anacystis (20%)
NUMBER OF ALGAL GENERA	7	14
SPECIES DIVERSITY	0.40	3.25
CHLOROPHYLL <u>a</u> (µg/L)		5.15
DOM. ZOOPLANKTON (% total) ¹	Polyarthra (40%)	Nauplius larva (25%)
²	Ciliate Spp. (35%)	Kellicottia (20%)
ROTIFERS/LITER	121	97
MICROCRUSTACEA/LITER	4	117
TOTAL ZOOPLANK. CNTS (cells/L)	235	216
VASCULAR PLANT ABUNDANCE		Common
DOMINANT VASCULAR PLANTS ¹		Pontederia cordata
²		Nymphaea
³		
SECCHI DISK TRANSPARENCY (M)		3.4
BOTTOM DISS. OXYGEN (mg/L)	5.4	0.0
SEDIMENT: % ORGANIC MATTER		

LAKE TYPE: A natural pond.

SUMMER THERMAL STRATIFICATION: YES x NO WEAK

IF YES, VOLUME OF HYPOLIMNION 28,000 (m³) THERMOCLINE DEPTH 3.6(m)

CHEMICAL: (mg/L unless indicated otherwise) LAKE: French Pond																	
	WINTER		SUMMER														
DATE	23 Jan 1985		29 AUG 1984														
DEPTH (M)	2.5	5.0	2.0	4.0	6.5												
pH (UNITS)	6.8	6.8	6.9	6.6	6.4												
ALKALINITY (I. P.)	18.1	17.7	15.6	17.7	30.1												
ALKALINITY (F.E.P.)	19.7	19.3	17.0	19.2	31.6												
NITRITE+NITRATE NITROGEN																	
TOTAL KJELDAHL NITROGEN																	
TOTAL PHOSPHORUS	.018	.185	<.001	<.001	.072												
SPEC. CONDUCT. (μMhos/cm)	79.0	79.1	71.9	76.5	96.7												
APPARENT COLOR (UNITS)	25	25	25	30	160												
TRUE COLOR (440 nm)(UNITS)	26	28	25	25	54												
MAGNESIUM			.91														
CALCIUM			4.5														
SODIUM			3														
POTASSIUM			1.0														
CHLORIDE			5		6												
TN : TP																	
INORG-N : INORG-P																	
[Mg+Ca] : [Na+K]			1.35														
CALCITE SATURATION INDEX			2.6														
* = NOT DEFENSIBLE NR = NO RESULT																	
TROPHIC CLASSIFICATION: 1984 CLASSIFICATION POINTS: <table border="1"> <thead> <tr> <th>D.O.</th> <th>S.D.</th> <th>PLANT ABUND.</th> <th>CHL a</th> <th>TOTAL PTS.</th> <th>TROPHIC CLASS.</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>2</td> <td>2</td> <td>1</td> <td>10</td> <td>MESO.</td> </tr> </tbody> </table>						D.O.	S.D.	PLANT ABUND.	CHL a	TOTAL PTS.	TROPHIC CLASS.	5	2	2	1	10	MESO.
D.O.	S.D.	PLANT ABUND.	CHL a	TOTAL PTS.	TROPHIC CLASS.												
5	2	2	1	10	MESO.												
COMMENTS: 1. The chlorophyll of the hypolimnion discrete sample (at 6.5 m) was 139 ug/L, compared to the epilimnetic composit value of 5 ug/L. The hypolimnetic water was very green, and the green material filtered out (the filter turned green and the filtrate was clear); however, no algae was observed microscopically, only bacteria. There was also no dissolved oxygen at this level. Evidently, one of the green sulfur bacteria (chlorobacteriaceae) was blooming. These bacteria have chlorophyll but produce sulfur rather than oxygen during photosynthesis.																	

FRENCH POND

HAVERHILL

ROUGH BATHYMETRIC CHART

WSPCC -- 1984

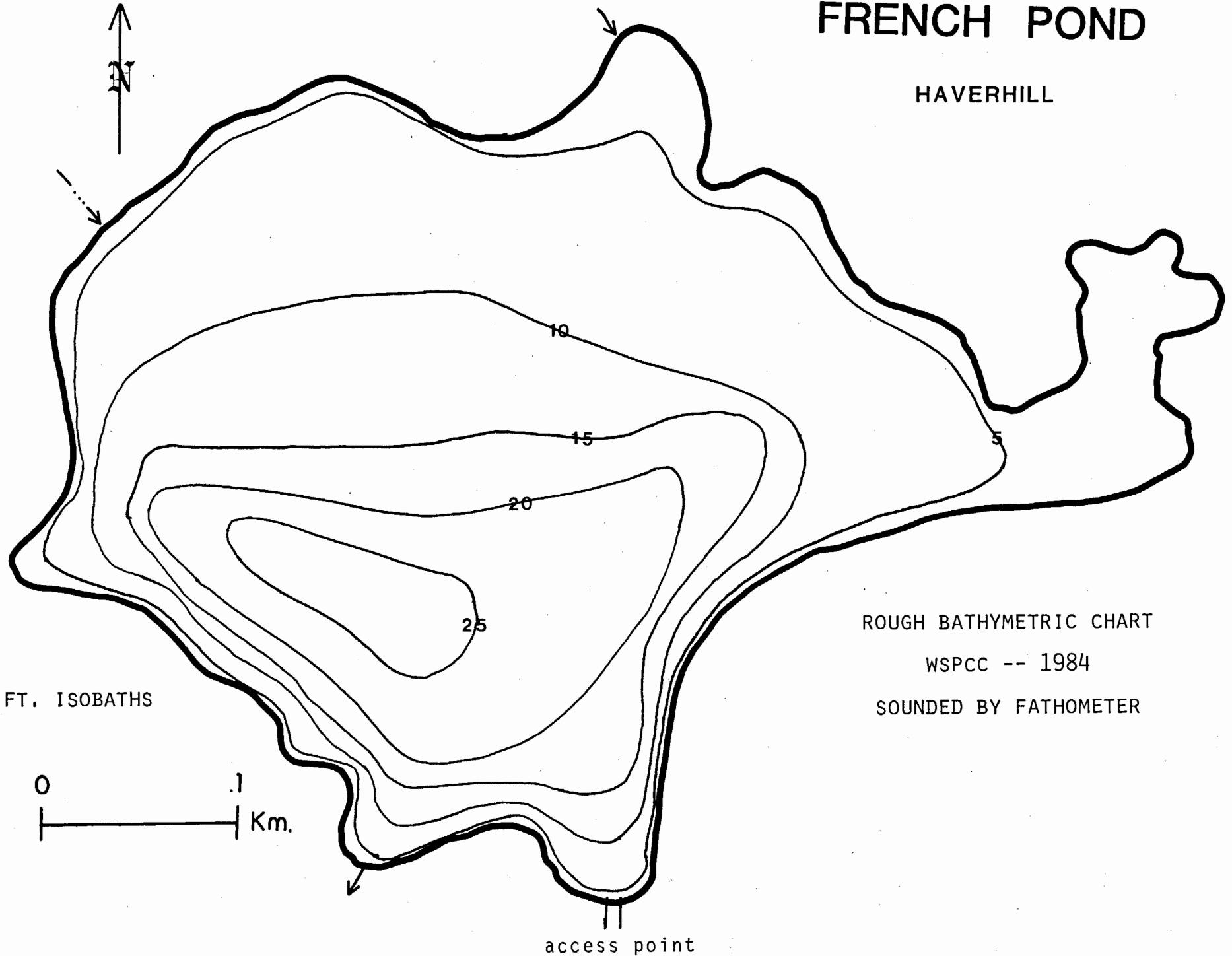
SOUNDED BY FATHOMETER

5 FT. ISOBATHS

0 .1 Km.

access point

154



FIELD DATA SHEET

WATER BODY French PondTOWN HaverhillBY WSPCCDATE COLLECTED 29 August 1984WEATHER Overcast

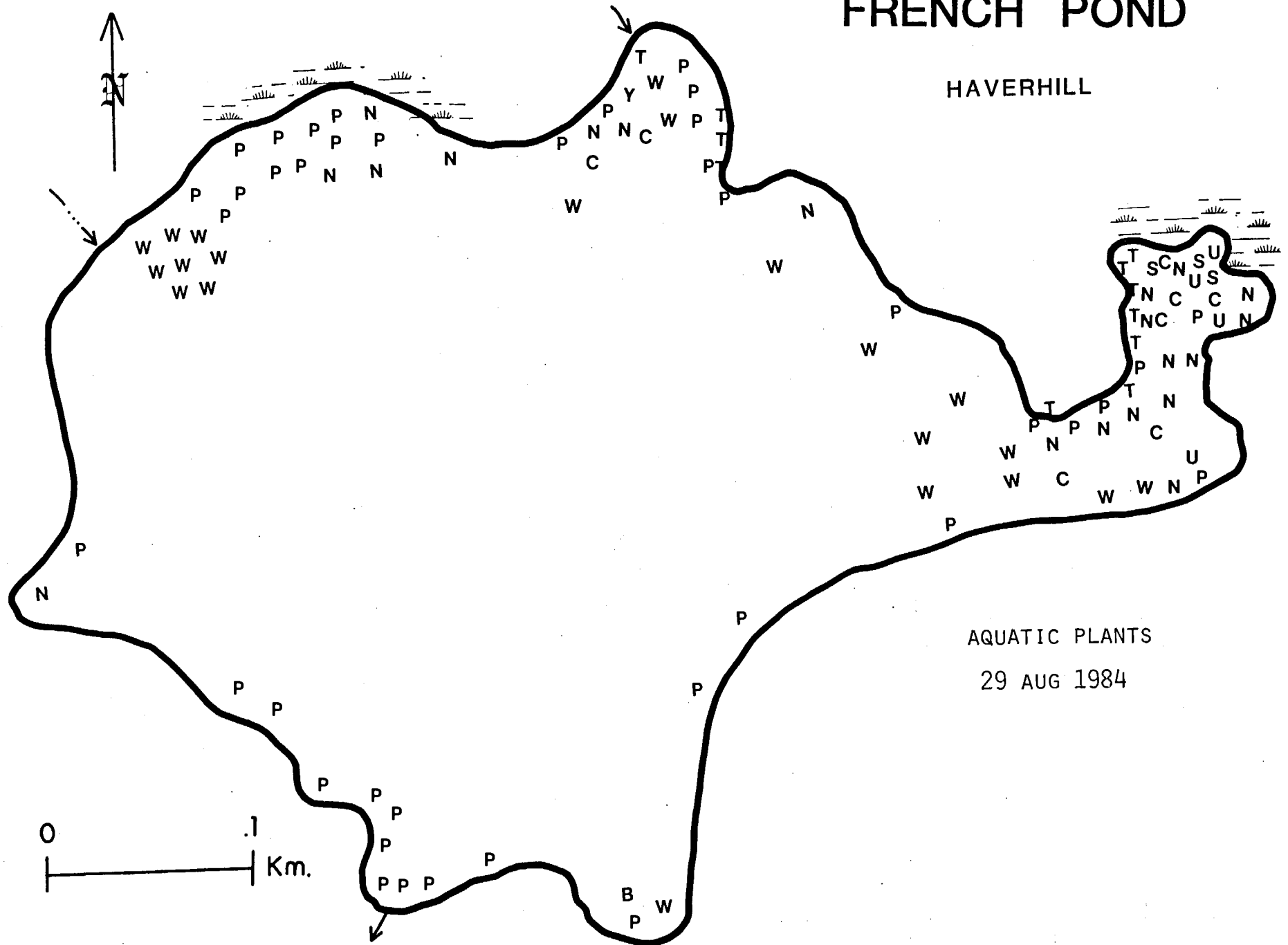
STATION	DEPTH (M)	TEMP. (°C)	*DISSOLVED OXYGEN	OXYGEN: % SATURATION			
Deep Spot	0.0	22.0	8.3	94%			
	1.0	22.0	8.3				
	2.0	21.5	7.8				
	3.0	19.4	7.0				
	4.0	14.0	1.75				
	5.0	10.1	0.0				
	6.0	8.9	0.0				
	6.5	8.9	0.0	0%			

SECCHI DISK (M) 3.4BOTTOM DEPTH (M) 7.0TIME 1225COMMENTS: Slight chop on water surface.

* Dissolved oxygen values in mg/L

FRENCH POND

HAVERHILL



AQUATIC PLANTS

29 AUG 1984

AQUATIC PLANT SURVEY

LAKE French Pond

TOWN Haverhill

DATE 8/29/84

BY

WSPCC

[illegible]

OVERALL ABUNDANCE Common

GENERAL OBSERVATIONS:

1. Plants were abundant in the eastern and northern coves, but common overall.